REMARKS

Claims 1, 2, 19, 28, and 30 are amended. Claim 9 has been cancelled without prejudice or disclaimer. Claims 1-8 and 10-37 are currently pending. Reconsideration of pending claims in view of the above amendments and following remarks is respectfully requested.

Claim 1 features apparatus for controlling motion of a motor driven element in a vehicle over a range of motion and for altering that motion when undesirable resistance to motion is encountered. A sensor measures a parameter of a motor coupled to the motor driven element that varies in response to a resistance to motion during all or part of a range of motion of the motor driven element. A memory is used to store a number of measurement values from the sensor based on immediate past measurements of the parameter over at least a portion of a present path of travel of the motor driven element through its range of motion. A controller coupled to the memory determines whether to de-activate the motor based on a most recent sensor measurement of the parameter and the immediate past measurement values stored in the memory that were obtained during a present run through the motor driven element the range of motion. A controller interface coupled to the motor alters motion of the motor driven element during the present run in response to a determination made by the controller.

A system constructed in accordance with the features of claim 1 allows the controller to adjust collision detection based on real time data obtained during a present run of the window or panel through its range of motion and this is clearly neither shown nor suggested by the prior art patent to Okuyama *et al.* (US 4,608,637).

Analysis regarding anticipation rejection of claim 1.

Okuyama *et al.* fails to anticipate claim 1 as "[a] claim is anticipated only if each and every element as set forth in the claim is found." *Verdegaal Bros. v. Union Oil Co.,* 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The controller featured in claim 1 performs collision detection based on *real time data obtained during a present run* of the window

or panel. This is to be contrasted with the system disclosed by the Okuyama *et al.* system, which uses training data stored by the controller during a previous run to signal a collision between a window and an obstacle. For this reason the Okuyama *et al.* patent neither anticipates nor renders obvious the structure of claim 1.

There are two situations disclosed in the '637 patent for stopping the motor. During normal operation, when the motor has driven the window to a so called goal position it is stopped. *See* col. 18, lines 35 – 40. A second condition for stopping the motor occurs when an overcurrent condition is sensed. The sensed motor current is compared with a table of stored values. *See* table 8 of Okuyama *et al.*

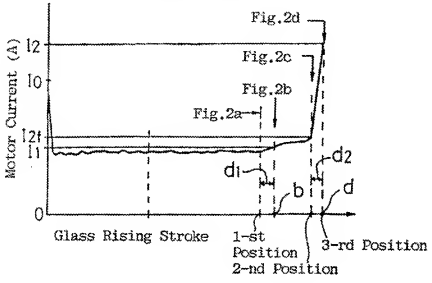
The Examiner's anticipation rejection of claim 1 is articulated at page 2 of the October 31, 2007 office action. The examiner states that the sensors 6a, 6ab *etc.* can be interpreted to be the sensors for measuring "a parameter of a motor" and then states that the Okuyama *et al.* patent at column 7, lines 49 – 62 shows measuring this parameter as the parameter varies in response to a resistance to motion. As an initial comment, the sensors 6a *etc.* of the '637 patent generate pulses rather than providing a means for measuring a parameter.

The parameter referred to by the Examiner at column 7, lines 49 – 62 (col. 7) is an overload current derived from an A/D converter. This motor current parameter is most definitely **not** monitored by the sensors 6a, 6ab *etc.* to which the Examiner refers. It is requested that the Examiner identify which parameter (position or motor current) he is referring to in the reference to col. 7, lines 49 – 62. This inconsistency makes the Examiner's rejection difficult to interpret.

A memory is also referred to by the Examiner whose function is described at column 8, lines 51 – 64 and whose contents are stored in table 6. This memory is for storing three positions per window (note since four windows are referenced, there are a total of 12 positions stored) in terms of counts from a zero position. Depending on the direction of motion, each pulse from the sensor (6a for example) increments or decrements a value corresponding to the then current position. The contents of table 6, *i.e.* 1st position, 2nd position and 3rd position, (*See* column 8, lines 51 – 64, referenced

by the Examiner) are count totals (obtained from the sensor 6a for example) described in reference to Figure 3a which is reproduced below.

Fig.3a



The Examiner's reference to the parameter as being both position (table 6) and motor current, (col. 7, lines 49 – 62) is confusing. Claim 1, however, patentably distinquishes from any possible interpretation of the '637 patent.

Returning to the language of claim 1, the claim calls for "a memory for storing *a* number of measurement values from the sensor based on immediate past measurements of said parameter" as well as "a controller coupled to the memory for determining to de-activate the motor *based on a most recent sensor measurement of the parameter and the immediate past measurement values stored in the memory obtained during a present run through the motor driven element's range of motion.*"

There is no teaching in the '637 patent for the italicized features of claim 1. If the measurement values stored in memory are position values (since two out of the three text references identified by the Examiner in the claim 1 rejection relate to position this is perhaps the Examiner's intent), then clearly these features are not shown (nor are they suggested) by the '637 patent. Under the Examiner's interpretation, receipt of a

sensor generated pulse by the '637 system could shut down the motor based on the value of an immediate past stored position value. This is not the case since the values stored in table 6 are stored during a calibration run rather than during an immediate past measurement stored in the memory as the motor driven element moves over its range of motion. For this reason claim 1 is neither shown, nor is it suggested by the '637 patent.

Additional claim analysis

Claim 2 features a method for controlling motion of a motor driven element in a vehicle over a range of motion and for altering the motion when undesirable resistance to the motion is encountered. The method is performed by measuring a parameter of a motor coupled to the motor driven element that varies in response to a resistance to motion during all or part of a range of motion of the motor driven element by taking a multiplicity of measurements as the motor moves the motor driven element over its range of motion. A number of measurement values are stored based on measurements of the motor parameter over *an immediate past portion of the present run through* its range of motion. If the parameter is determined to be outside a parameter range based on previous stored measurement values as the motor driven element moves over its range of motion, the method of claim 2 alters motion of said motor driven element.

The distinctions noted above with regard to claim 1 are pertinent to claim 2. There is no teaching or suggestion of the italicized reference to a motor parameter obtained during an immediate past portion of the present run being stored nor used to make a determination and therefore claim 2 is allowable.

Claims 3 – 5 depend from allowable claim 2 and are also allowable. As a point of clarification, the summary of the rejection for these claims mention the '637 patent to Okuyama *et al.* but the detailed rejection, (*See* page 3, line 3 of the office action) mention a prior art patent to Jones *et al.* Clarification is requested.

Claim 6 features apparatus for controlling activation of a motor coupled to a

motor vehicle window or panel that moves the window or panel along a travel path and de-activates if an obstacle is encountered by the window or panel.

The apparatus includes a sensor for sensing movement of the window or panel and providing a sensor output signal related to a speed of movement of the window or panel; a switch for controllably actuating the motor by providing an energization signal; and a controller having an interface coupled to the sensor and the switch for controllably energizing the motor.

The controller senses a collision with an obstruction when power is applied to the controller by:

i) monitoring movement of the window or panel by monitoring a signal from the sensor related to the movement of the window or panel;

ii) *adjusting an obstacle detection threshold in real time based on immediate past measurements of the signal sensed by the sensor to adapt to varying conditions encountered during operation of the window or panel*;

iii) identifying a collision of the window or panel with an obstacle due to a change in the signal from the sensor that is related to a change in movement of the window or panel by comparing a value based on a most recent signal from the sensor with the obstacle detection threshold; and

iv) outputting a control signal to said switch to deactivate said motor in response to a sensing of a collision between an obstacle and said window or panel.

It is assumed that although the Jones *et al.* patent is mentioned at page 3, line 16, the Examiner intends to use the Okuyama *et al.* patent especially in view of the recitation of the same column and line numbers from Okuyama *et al.* used in discussing claims 1 and 2.

The italicized portions of the paraphrased portions of claim 6 relating to real time measurements of a signal to adjust a threshold are neither shown nor suggested by the prior art cited. For this reason claim 6 is allowable.

Claims 7, 8, 10 and 11 depend from allowable claim 6 and are also allowable.

Claim 12 features apparatus for controlling activation of a motor to move an

object along a travel path. The motor is de-activated if an obstacle is encountered by the object. A movement sensor monitors movement of the object as the motor moves the object along a travel path. A switch controls energization of the motor with an energization signal.

A controller has an interface coupled to the switch for controllably energizing the motor. The interface also couples the controller to the movement sensor to monitor signals from the movement sensor. The controller has a stored program that:

i) determines motor speed of movement from an output signal from the movement sensor;

ii) calculates an obstacle detect threshold based on motor speed of movement detected during a present run of said motor driven element;

iii) compares a value based on currently sensed motor speed of movement with the obstacle detect threshold; and

iv) outputs a signal from the interface to said switch for stopping the motor if the comparison based on currently sensed motor movement indicates the object has contacted an obstacle.

The Examiner asserts the italicized portion of claim 12 relating to a determination of motor speed is taught at col. 7, lines 6 – 36 of Okuyama *et al.* Reading of this portion of the "637 patent fails to disclose this feature, nor does is suggest this feature. For at least this reason claim 12 is patentable. Claims 13 – 18 depend from allowable claim 12 and are also allowable.

Claim 19 features apparatus for controlling activation of a motor for moving a window or panel along a travel path. The motor is de-activated if an obstacle is encountered by the window or panel. A sensor senses movement of a window or panel along a travel path. A switch controls energization of the motor with an energization signal. A controller coupled to the switch for controllably energizing the motor and having an interface coupling the controller to the sensor and to the switch. The controller comprises decision making logic for:

i) monitoring a signal from the sensor;

ii) *calculating a real time obstacle detect threshold based on the signal that is detected during at least one prior period of motor operation during movement along a present or current run along a path of travel of said window or panel ;*

iii) comparing a value based on a currently sensed motor parameter with the obstacle detect threshold; and

iv) stopping movement of the window or panel by controlling an output to said switch that controls motor energization if the comparison based on a currently sensed motor parameter indicates the window or panel has contacted an obstacle.

Since the Okuyama *et al.* prior art patent neither shows nor suggested the italicized portion of the claim relating to a real time obstacle detection threshold, this claim is allowable.

Claim 20 features apparatus for controlling activation of a motor for moving a window or panel along a travel path and de-activating the motor if an obstacle is encountered by the window or panel. A sensor generates speed signals representative of the window or panel speed as the motor moves the window or panel along a travel path. An obstacle detection controller monitors at least a part of the travel path of the window or panel to sense and generate an obstacle detect signal indicating the presence in said travel path of an obstacle to movement of the window or panel. A switch coupled to said controller for controls energization of the motor with an energization signal.

The controller featured in claim 20 processes speed signals and obstacle detection signals and controls operation of the motor in response to said speed or obstacle detection signals. The controller has

i) a storage for storing a number of speed signals that vary with motor speed;

ii) a processor for calculating an obstacle detect threshold based on one or more speed signals stored in said storage obtained in real time based on immediate past measures of the speed signal sensed by the sensor to adapt to varying conditions encountered during movement along a present path of travel of said window or panel;

iii) a logic unit for making a comparison between a value representing window or

panel speed based on a currently sensed motor speed signal with the calculated obstacle detect threshold, and generating a control output if an obstacle is detected based on said comparison; and

iv) an interface coupled to said switch for changing the state of the switch to stop the motor.

The '637 patent to Okuyama *et al.* does not show or suggest the italicized features of claim 20. The only potential speed signals that are received are the pulses transmitted by the sensors 6a *etc.* to the controller. These signals are not stored in memory, however, but are instead used to increment or decrement a position indicator that relates to the number of counts from a zero position for the window. For at least this reason, claim 20 is not anticipated.

Claims 21 – 27 depend from allowable claim 20 and are also allowable.

Analysis regarding obviousness rejection of claims 24 – 27, 36, and 37.

The Office Action stated that claims 24-27, 36 and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Okuyama *et al.* The M.P.E.P. sets forth the criteria for a rejection for obviousness as follows:

> [t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

See, MPEP § 706.02(j) *citing In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Okuyama *et al.* fails to satisfy the above *prima facie* criteria set fourth above and as such, the rejection is respectfully traversed.

In particular, the Office Action states that Official Notice is taken with respect to

claims 24-27, stating "that Okuyama *et al.* does not disclose the apparatus, wherein the obstacle detector comprises an infrared light source and detector" and that "Official Notice is taken with respect to infrared light sources being well known in the art to detect movement of an object." *See* Office Action at page 7. It is respectfully pointed out that *only* claim 25 discusses an infrared light source and detector. Therefore, the rejection with respect to claims 24 and 26-27, respectfully remain unaddressed and are assumed to be in allowable condition.

The Examiner's reliance on Official Notice with respect to claim 25 is respectfully misplaced as it is not considered to be common knowledge to use an infrared light source and detector as an obstacle detector in an apparatus for controlling the movement of a window. Accordingly, the rejection with respect to claim 25 is respectfully traversed. "If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding." *See* M.P.E.P. 2144.03(C) citing 37 C.F.R. 1.104(d)(2). Further, claims 24-27, 36, and 37 depend either directly or indirectly from nonobvious independent claim 20, 1, and 6, respectively, and are allowable as a result of their dependency and because of their own distinctive features. Accordingly, claims 24-27, 36 and 37 are in condition for allowance and a notice to that effect is respectfully requested.

Claim 28 features apparatus for controlling activation of a motor coupled to a motor vehicle window or panel as the window or panel moves along a travel path. The motor is de-activated when the window or panel is within an acceptable range of a predetermined position. A sensor senses movement of the window or panel and provides a sensor output signal related to a position of the window or panel. A switch controllably actuates the motor by providing an energization signal.

A controller has an interface coupled to the sensor and the switch for controllably energizing the motor. The controller determines the position of the window or panel when power is applied to the controller by monitoring the sensor output signal from the sensor related to the position of the window or panel and identifying the position of the

window or panel based on the sensor output signal from the sensor. The controller outputs a control signal to the switch to deactivate the motor in response to a sensing of said window or panel within the acceptable range.

Support for the additional recitations added by amendment to claim 28 is found in the current application at, for example Page 40, Lines 10-14; and Page 28, Last Line – Page 29, Lines 1-3 and these features are neither shown nor are they suggested in the prior art.

Claims 29 – 32 depend from allowable claim 28 and are allowable.

Claim 33 features apparatus for controlling activation of a motor for moving a motor driven element in a vehicle over a range of motion and de-activating the motor when undesirable resistance to motion of the element is encountered. *The apparatus includes a sensor for sensing a speed of the motor and generating an output signal representative of a speed of the motor*, a speed of the motor changing when undesirable resistance to motion of the element is encountered. A switch controls activation of the motor.

A controller is coupled to the sensor and the switch and receives the sensor output signal from the sensor and outputs a control signal to the switch to de-activate the motor if the sensor output signal indicates that the element has encountered undesirable resistance to motion.

The reference to col. 7, lines 30 – 37 of Okuyama *et al.* (See page 3, line 21 of office action) fails to teach or suggested the italicized features of claim 33 relating to sensing speed of movement and therefore this claim is allowable.

Claims 34 and 35 depend from allowable claim 33 and are allowable.

All claims are believed to be in condition for allowance and prompt issuance of a Notice of Allowance is respectfully requested. If any fees are determined to be due, the commissioner is authorized to charge those fees to deposit account no 20-0090.

Respectfully submitted,

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/Stephen J. Schultz/

Stephen J. Schultz
Registration No. 29, 108
Tarolli, Sundheim, Covell and Tummino
1300 East Ninth St., Suite 1700
Cleveland, OH 44114
Phone: (216) 621-2234
Facsimile: (216) 241-8151
E-mail: sschultz@tarolli.com